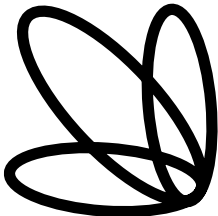
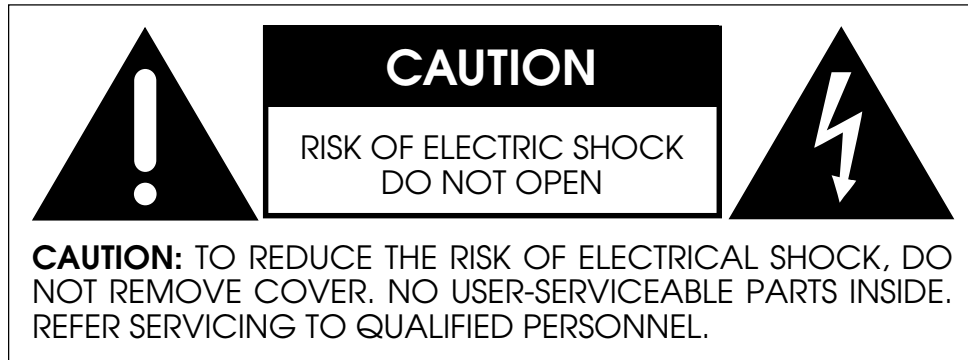


**BPA 2 & BPA 3 Power Amplifiers**

 **BELDEN<sup>®</sup> PROCEDURE**

**WARNING:** TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Marking by the “CE” symbol (shown left) indicates compliance of this device with the EMC (Electromagnetic Compatibility) and LVD (Low Voltage Directive) standards of the European Community.

The information contained in the manual is subject to change without notice. The most current version of this manual will be posted on our web site at <http://www.madrigal.com>.

# Important Safety Instructions

Please read all instructions and precautions carefully and completely before operating your Proceed power amplifier.

1. **ALWAYS** disconnect your entire system from the AC mains before connecting or disconnecting any cables, or when cleaning any component.
2. This product is equipped with a three-conductor AC mains power cord which includes an earth ground connection. To prevent shock hazard, all three connections must **ALWAYS** be used. If your electrical outlets will not accept this type of plug, an adapter may be purchased. If an adapter is necessary, be sure it is an approved type and is used properly, supplying an earth ground. If you are not sure of the integrity of your home electrical system, contact a licensed electrician for assistance.
3. AC extension cords are not recommended for use with this product. If an extension cord must be used, be sure it is an approved type and has sufficient current-carrying capacity to power this product.
4. **NEVER** use flammable or combustible chemicals for cleaning audio components.
5. **NEVER** operate this product with any covers removed.
6. **NEVER** wet the inside of this product with any liquid.
7. **NEVER** pour or spill liquids directly onto this unit.
8. **NEVER** block air flow through ventilation slots or heatsinks.
9. **NEVER** bypass any fuse.
10. **NEVER** replace any fuse with a value or type other than those specified.
11. **NEVER** attempt to repair this product. If a problem occurs, contact your Proceed® retailer.
12. **NEVER** expose this product to extremely high or low temperatures.
13. **NEVER** operate this product in an explosive atmosphere.
14. **ALWAYS** keep electrical equipment out of the reach of children.
15. **ALWAYS** unplug sensitive electronic equipment during lightning storms.

*From all of us at Madrigal Audio Laboratories, thank you for choosing this Proceed power amplifier.*

*A great deal of effort went into the design and construction of this precision device. Used properly, it will give you many years of enjoyment.*

# Table of Contents

<b>Unpacking and Placement</b> .....	<b>6</b>
Unpacking .....	6
Placement .....	6
Ventilation .....	6
<b>Operating Voltage</b> .....	<b>7</b>
<b>A Quick Start</b> .....	<b>8</b>
<b>Special Design Features</b> .....	<b>10</b>
Multiple monaural design .....	10
Low impedance power supply .....	10
Balanced inputs .....	10
Robust output stage .....	10
Extensive protection .....	10
<b>Front Panel</b> .....	<b>11</b>
<b>Rear Panel</b> .....	<b>13</b>
<i>Remote turn-on</i> .....	
<i>tip polarity</i> .....	14
<b>Care &amp; Maintenance</b> .....	<b>16</b>
<b>U.S. and Canadian Warranty</b> .....	<b>17</b>
90-Day Limited Warranty .....	17
Five Year Extended Warranty .....	17
<b>Obtaining Service</b> .....	<b>18</b>
<b>Specifications</b> .....	<b>19</b>
<b>Dimensions: BPA 2 &amp; BPA 3</b> .....	<b>20</b>
<b>Rack Mounting</b> .....	<b>21</b>

# Unpacking and Placement

**Unpacking** Unpack your Proceed® BPA 2 or BPA 3 power amplifier and ***keep all packing materials for future transport***. Shipment of the amplifier without the original packing material is *not* recommended. Locate and remove the heavy gauge AC power cord, which is tucked into a cardboard slot within the box.

**Placement** Your Proceed BPA may be placed either near the preamplifier/control center or near the loudspeakers. It may be placed on a shelf or in a cabinet where it is convenient to operate.

*Note that adequate clearance for the AC cord and connecting cables must be left behind your BPA. We suggest leaving at least three inches of free space behind your BPA to allow all cables sufficient room to bend without crimping or undue strain.*

**Ventilation** Be sure to allow 2 to 3 inches of clearance above your BPA to allow heat dissipation through air circulation. The vents on both the bottom and the top of the BPA must be kept free from any obstruction which would reduce the flow of air through the unit. The best rule of thumb is this: if the top of your BPA is too hot to touch when “idle,” it needs better ventilation. If so, consider drilling holes in the supporting shelf under the BPA to promote flow-through ventilation, or use fans to increase air circulation.

Open equipment racks are generally best for power amplifiers, as they allow ample ventilation. If your amplifier must be located inside a cabinet which restricts airflow, consider using some fans to increase ventilation.

Avoid placement on soft surfaces such as carpeting. If you prefer to have the BPA on the floor near your loudspeakers, be sure to place it on a firm surface. (A piece of tempered glass under the amplifier is aesthetically unobtrusive while providing firm support and allowing the required ventilation.)

Mechanical drawings are included in this manual to facilitate special installations and custom cabinet work (see “Dimensions” at the end of this manual).

---

***For your protection, review “Important Safety Instructions” before you install your BPA.***

---

# Operating Voltage

The Proceed BPA 2 and BPA 3 are factory-set for 100V, 120V, 220V, 230 or 240V AC mains operation at either 50 or 60Hz, according to the country for which the unit was manufactured. (*230V only in European Union countries, in compliance with CE regulations.*) Make sure that the label on the rear of the BPA indicates the correct AC operating voltage for your location. The operating voltage cannot be changed by the user, and any attempt to do so will void the warranty.

If the voltage indicated does not match the service in your area, see your Proceed dealer.

# A Quick Start

We recognize that many people are understandably eager to begin listening to their new components, and that reading the manual is often done (if at all) at a later time—perhaps while listening to music through the new product itself. We strongly recommend that you read this manual thoroughly.

Fortunately, we can help you get some music up and running on your system quickly, so that you may begin enjoying your new amplifier while reading more about it. The goal here is simply to make some music as quickly as possible.

The following procedure assumes that the rest of your system is already connected (e.g., source components to preamplifier).

## **1 TURN DOWN THE VOLUME ON YOUR PREAMPLIFIER**

Turning the volume on the preamp all the way down minimizes the opportunity for unpleasant surprises when first powering up your new amplifier. It does not need to be turned off—merely turned down.

## **2 SELECT “XLR” OR “RCA” WITH THE “INPUT SELECT” SWITCHES**

Each channel of the Proceed BPA 2 and BPA 3 has both balanced (XLR) and single-ended (RCA) inputs, with a small switch between the two connectors to select between them. Using these switches, select the appropriate input for each channel, given your interconnecting cables and preamplifier's capabilities.

## **3 CONNECT YOUR PREAMP TO THE BPA**

Having selected the appropriate inputs in Step 2, now connect the outputs of your preamplifier to the corresponding inputs on the power amplifier.

## **4 CONNECT YOUR SPEAKERS TO THE BPA**

Connect speaker wire from the BPA output terminals to your loudspeakers. Be sure to maintain consistency in polarity, e.g., the red post on the amplifier to the red connector on the speaker, and likewise black to black. (Getting the wires mixed up won't damage anything, but the sound will be lacking in bass and the imaging will be quite poor and unstable.)

## **5 CONNECT THE AC CORD TO THE BPA AND TO YOUR AC OUTLET**

The AC receptacle for the power cord is located on the right side of the rear panel, as seen from the front. The BPA will initially power up in standby mode.

## **6 TURN ON THE BPA BY PRESSING THE POWER BUTTON**

Pressing the latching power button on the front panel of the BPA 2 and BPA 3 will connect the amplifier to the AC mains. If the indicator light does not light, the amplifier is either not receiving AC power or its protection circuitry has been engaged.



**7 SLOWLY RAISE THE VOLUME ON YOUR PREAMPLIFIER**

Congratulations! You should now be able to enjoy your favorite music while reading the rest of this manual. *(Please, do read the rest of this manual. It contains much valuable information about your new amplifier which we could not possibly fit onto these two pages.)*

# Special Design Features

Congratulations on your purchase of a Proceed BPA! While your new amplifier is straightforward in its use, it includes several design features which are responsible for its outstanding performance. A few of these are given below.

## **Multiple monaural design**

Consistent with the finest amplifiers, your Proceed BPA is a true “multiple monaural” design. Each audio channel has its own, dedicated power supply—including a separate 300VA toroidal transformer for each channel. This approach reduces crosstalk between audio channels for superior imaging and reproduction of acoustic space. The demands placed on one channel have virtually no effect on the performance of the other channel(s).

## **Low impedance power supply**

A critical factor in the ultimate performance of an amplifier is its “power supply impedance,” which can be loosely thought of as the freedom with which the audio circuitry has access to the power it needs, when it needs it. The design of your Proceed BPA has addressed this important characteristic in a comprehensive fashion. For example, the power supply capacitors (which act as “reservoirs” of power for the amplifier circuitry) are mounted directly to the printed circuit board, immediately adjacent to the output transistors (which require the greatest amount of current). The layout of the circuitry uses short, thick traces for high current paths. Internal current capability is further enhanced with high purity copper buss bars. This attention to detail yields an optimal environment in which the amplifier may operate to its maximum potential.

## **Balanced inputs**

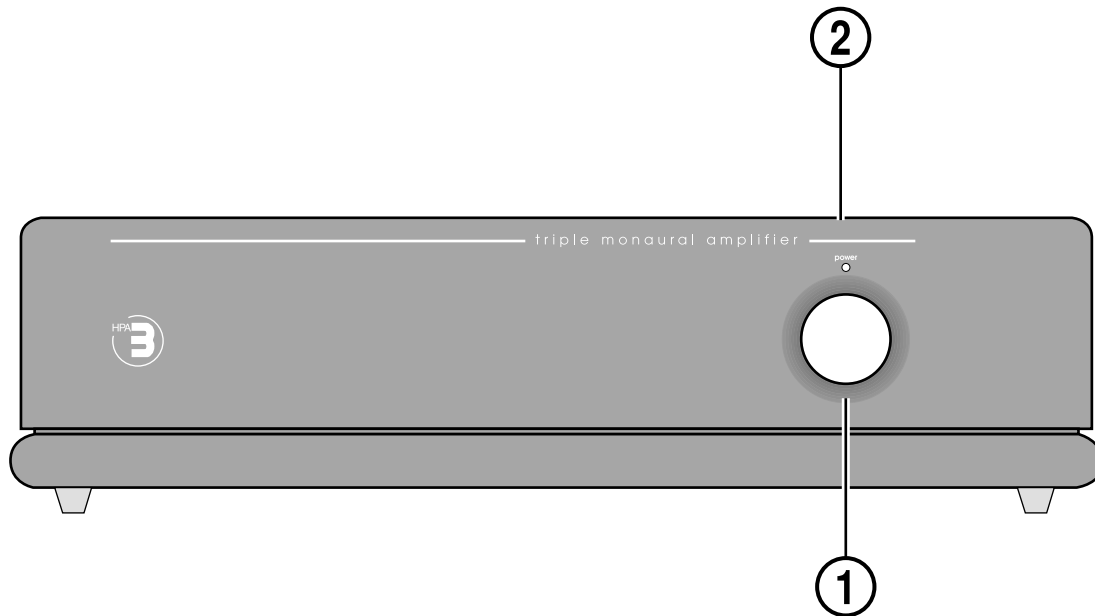
Each channel of your BPA is individually configurable to receive either balanced or single-ended inputs. This approach allows you to take full advantage of the greater immunity from noise, RFI, and EMI which balanced transmission of audio signals offers on any preamp-to-amplifier connection where it is supported. At the same time, any or all channels of the amplifier may be configured for single-ended inputs to maintain compatibility with the majority of preamplifiers available today. The gain structure of the BPA adjusts automatically when you select different inputs to facilitate this “mix and match” approach.

## **Robust output stage**

Each channel of your Proceed BPA uses eight 150 watt power transistors. These transistors are all individually tested and sorted, and are used in matched sets to ensure that no one transistor bears a disproportionate part of the overall load. The combination of an “overbuilt” design specification and extraordinary attention to detail in manufacturing improves performance, reliability, and longevity.

## **Extensive protection**

Your Proceed amplifier will shut itself down if it senses either the presence of DC (direct current) at the output or an unsafe operating temperature. In either case, a power relay will cause the amplifier to be disconnected from the AC mains. In addition, the AC input to each transformer is fused to protect against excessive current conditions such as driving shorted outputs. Finally, inrush limiting prevents premature aging of power supply components during power-up, and switches off-line once the power supply has been charged.



## Front Panel

### 1 POWER BUTTON

Pressing the latching **power** button connects the amplifier to the AC mains, turning it **on**. Power consumption when fully on and at idle is approximately 140 watts for the BPA 2 and 210 watts for the BPA 3.

At your option, you may also toggle the BPA between a **standby** mode and fully **on** by connecting its **remote turn on jack** to the corresponding **remote turn on output** on a Proceed control unit such as the AVP.

When first powered up, the BPA will always go to fully **on**, regardless of the signal present at its **remote turn-on jack**. If the control unit then turns on, the amplifier will remain on; thereafter, the two will remain in sync. If power is removed from the BPA, it will automatically re-sync with the control unit in the course of normal operation. No user intervention is required, beyond simply turning the system on and off from the control unit.

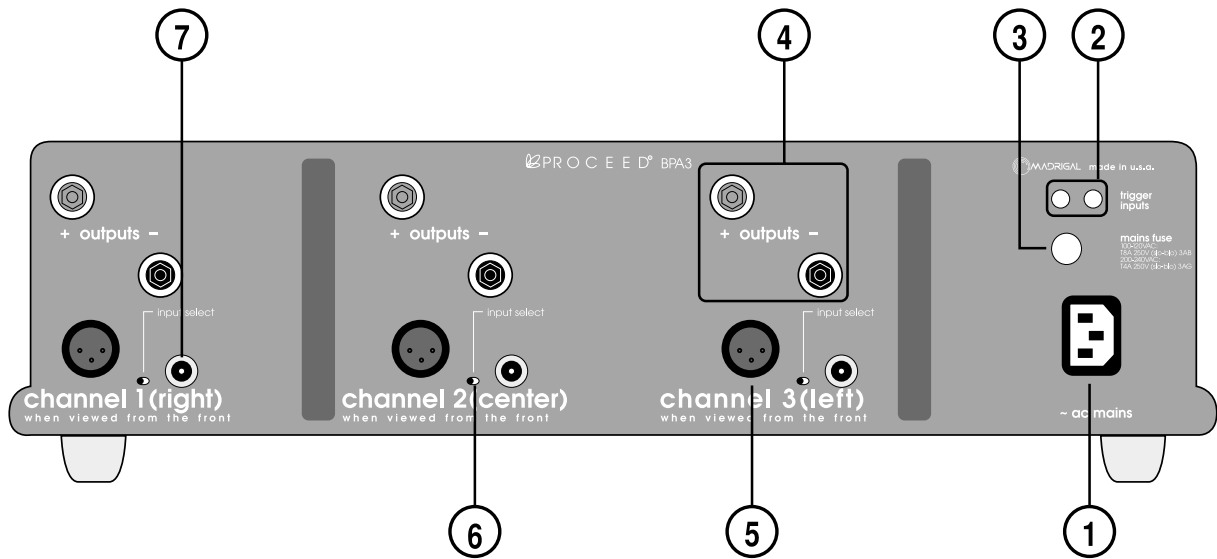
Power consumption in **standby** mode is significantly reduced from fully “on”—just a few watts for the circuitry which controls the turn-on procedure.

Note that if the amplifier has been disconnected from the AC mains power by depressing the front panel **power** button, it cannot respond to a remote turn-on command from a control unit.

### 2 INDICATOR LIGHT

The **indicator light** glows either amber or red, depending on the operational status of your BPA. Amber indicates that the BPA is **on** and ready to

be used. When the indicator light is glowing red, the unit is in **standby** (see 1 above). If the indicator light is completely off, the amplifier is not receiving power. Check your AC connections and the rear-panel AC fuse.



## Rear Panel

### Caution!

*Turn the volume on your preamplifier all the way down before attempting to connect anything to your Proceed BPA 2 or BPA 3.*

### 1 AC MAINS RECEPTACLE

Connect the AC power cord (included in the accessory pack) to the I.E.C.-standard AC receptacle on the rear panel of the BPA, then to the AC mains outlet.

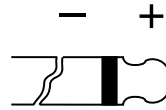
### Warning!

*The Proceed BPA has been safety-tested and is designed for operation with a three-conductor power cord. Do not defeat the "third pin" or earth ground of the AC power cord.*

### 2 REMOTE TURN-ON JACK

A 1/8" "mini" jack above the AC mains receptacle on the rear panel allows remote-controlled turn-on (that is, toggling between **on** and **standby**) of the Proceed BPA. This remote "trigger" will be operated by 3–12 volts DC level signal, with tip polarity as shown below:

Remote turn-on  
tip polarity



3-15 volts @ less  
than 100 mA

Your Proceed dealer can help you take advantage of these design features to maximize your system's versatility.

### 3 AC MAINS FUSE

One fast-blow fuse is located on the rear panel of the BPA. If it should become necessary, replace the fuse with the same type only. Refer to the following table for replacement values.

	<u>BPA 2</u>	<u>BPA 3</u>
100V to 120VAC	8 amp	12 amp
200V to 240VAC	4 amp	6 amp

**Caution!**

---

***ALWAYS remove the AC cord before removing the fuse!***

---

### 4 SPEAKER BINDING POSTS

The Proceed BPA is equipped with gold-plated, high-current binding posts for output termination to a loudspeaker system. To take full advantage of the AMP's sonic quality, we recommend using high-quality speaker cable; we suggest you see your Proceed dealer for specific recommendations.

**Caution!**

---

***NEVER connect the Proceed BPA output terminals to any device other than a loudspeaker.***  
***NEVER short-circuit the amplifier's output terminals.***  
***NEVER connect the left-channel output terminals to the right-channel output terminals.***

---

There are two recommended methods for connecting speaker cables to the Proceed BPA. A high-quality spade lug or hook lug, soldered to the cable (or crimped with extremely high pressure, or both) is best.

Connect the left-channel + (positive or red) output post of the Proceed BPA to the + (positive or red) input terminal of the appropriate loudspeaker.

Connect the left-channel - (negative or black) output post of the BPA to the - (negative or black) input terminal of the appropriate loudspeaker.

Repeat this procedure for the remaining channel(s).

## 5 BALANCED AUDIO INPUTS

Accepts right-channel and left-channel signals from preamplifiers with balanced outputs via high quality XLR connectors.

The pin assignments of these XLR-type female input connectors are:



Pin 1: Signal ground

Pin 2: Signal + (non-inverting)

Pin 3: Signal – (inverting)

Connector ground lug: chassis ground

These pin assignments are consistent with the standards adopted by the Audio Engineering Society. Refer to the operating manual of your balanced-output preamplifier to verify that the pin assignments of its output connectors correspond to your Proceed BPA. If not, wire the cables so that the appropriate output pin connects to the equivalent input pin.

If you are planning to use balanced connections between your preamplifier and any particular channel of the BPA, select the balanced input by sliding the **input select switch** (see Item 6, below) toward the XLR input. Then connect the balanced outputs of your preamplifier to the corresponding balanced inputs on the BPA.

## 6 INPUT SELECT SWITCH

This small switch is found between the balanced XLR input and the single-ended RCA input on each channel of the BPA. Use it to select which of the two inputs you plan to use.

The input select switch disables the unselected input in order to avoid any pickup of stray noise from an open input. It also causes the effective gain of that channel to be adjusted (either 23 dB balanced or 29 dB single-ended, to compensate for the 6 dB difference in signal level in these two connection standards). Should you use your BPA in a home theater system, this adjustment allows you to use any combination of balanced and single-ended connections without having to worry about going outside the adjustment range of your controller's output calibration circuitry.

## 7 SINGLE-ENDED INPUTS

These RCA connectors accept single-ended inputs from preamplifiers with single-ended (RCA) outputs.

Connect the left-channel single-ended outputs of your preamplifier to the left-channel single-ended input on the BPA. Repeat for the remaining channel(s).

# Care & Maintenance

To remove dust from the cabinet of your amplifier, use a feather duster or a lint-free soft cloth. To remove dirt and fingerprints, we recommend isopropyl alcohol and a soft cloth. Dampen the cloth with alcohol first and then lightly clean the surface of the amplifier with the cloth. Do not use excessive amounts of alcohol that might drip off the cloth and into the amplifier.

**Caution!**

---

***At no time should liquid cleaners be applied directly to the amplifier, as direct application of liquids may result in damage to electronic components within the unit.***

---



# U.S. and Canadian Warranty

## 90-Day Limited Warranty

This Proceed® product is warranted to be free from defects in material and workmanship under normal use for a period of ninety (90) days from the date of purchase. **To extend the warranty of this Proceed product**, return the warranty registration card along with a copy of the original receipt of purchase to Madrigal Audio Laboratories, Inc., P. O. Box 781, Middletown, CT 06457.

## Five Year Extended Warranty

The **extended warranty** for this Proceed product is **five (5) years** from the date of purchase. During the warranty period, any Proceed component exhibiting defects in materials and/or workmanship will be repaired or replaced, at our option, without charge for either parts or labor, at our factory. The warranty will not apply to any Proceed component that has been misused, abused or altered.

Any Proceed component not performing satisfactorily may be returned to the factory for evaluation. Return authorization must first be obtained by either calling or writing the factory prior to shipping the component. The factory will pay for return shipping charges only in the event that the component is found to be defective as mentioned above. There are other stipulations that may apply to shipping charges.

There is no other express warranty on this component. Neither this warranty nor any other warranty, express or implied, including any implied warranties of merchantability or fitness, shall extend beyond the warranty period. No responsibility is assumed for any incidental or consequential damages. Some states do not allow limitations on how long an implied warranty lasts and other states do not allow the exclusion or limitation of incidental or consequential damages, so that the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. **This warranty is applicable in the United States and Canada only.** Outside of the U.S. and Canada, please contact your local, authorized Proceed distributor for warranty and service information.

# Obtaining Service

We take great pride in our dealers. Experience, dedication, and integrity make these professionals ideally suited to assist with our customers' service needs.

If your Proceed component must be serviced, please contact your dealer. Your dealer will then decide whether the problem can be remedied locally, or whether to contact Madrigal for further service information or parts, or to obtain a Return Authorization. The Madrigal Technical Services Department works closely with your dealer to solve your service needs expediently.



## **Important!**

---

***Return authorization must be obtained from Madrigal's Technical Services Department BEFORE a unit is shipped for service.***

---

It is extremely important that information about a problem be explicit and complete. A specific, comprehensive description of the problem helps your dealer and the Madrigal Technical Services Department locate and repair the difficulty as quickly as possible.

A copy of the original bill of sale will serve to verify warranty status. Please include it with the unit when it is brought in for warranty service.



## **Warning!**

---

***All returned units must be properly packaged (preferably in their original packing material), and the proper return authorization numbers must be marked on the outer carton for identification. If the packaging to protect the unit is, in our opinion or that of our dealer, inadequate to protect the unit, we reserve the right to repackage it for return shipment at the owner's expense. Neither Madrigal nor your dealer can be responsible for shipping damage due to improper (that is, non-original) packaging.***

---

Your dealer can order a new set of shipping materials for you if you need to ship your component and no longer have the original materials. There will be a charge for this service. We *strongly* recommend saving all packing materials in case you need to ship your unit some day.

# Specifications

*The correlation between published specifications and performance is unreliable. A list of numbers reveals virtually nothing. All technical measurements must be subject to qualitative as well as quantitative interpretation. Measurements of the Proceed BPA yield excellent results by any standards. However, only those specifications that apply to its actual operation are included here. All specifications are subject to change at any time, in order to improve the product.*

- **Rated power output:** 125 w/ch rms @ 8 $\Omega$ , all channels driven,  
20 Hz–20 kHz with no more than 0.1% THD  
250 w/ch into 4 $\Omega$
- **Frequency response:** within 0.1 dB from 20 Hz to 20 kHz
- **Signal to Noise ratio (main outputs):** better than –80 dB (ref. 1 w)
- **Input impedance:** 30k $\Omega$  (balanced)  
100k $\Omega$  (single-ended)
- **Voltage gain:** 23 dB (balanced)  
29 dB (single-ended)
- **Input sensitivity:** 2.4 V for full rated output (balanced)  
1.2 V for full rated output (single-ended)
- **Power consumption:** typically 140 W at idle (BPA 2)  
typically 210 W at idle (BPA 3)
- **Mains voltage:** determined by the needs of country for which  
the unit was manufactured; cannot be reset by dealer or user
- **Overall dimensions:** See “Dimensions”
- **Shipping weight:** 47 lbs. (21.4 kg) for BPA 2  
61 lbs. (27.7 kg) for BPA 3
- **Connector Complement:** two binding posts per channel  
one 3-pin XLR balanced input connector per channel  
1 RCA input connector per channel  
1 1/8" mini-jack for remote turn-on  
one IEC AC mains connector
- **Output impedance:** less than 0.05 $\Omega$

For more information, see your Proceed dealer, or contact:

***Madrigal Audio Laboratories, Inc.***

*P.O. Box 781*

*2081 South Main Street (Route 17)*

*Middletown, Connecticut 06457 USA*

*Telephone (860) 346-0896*

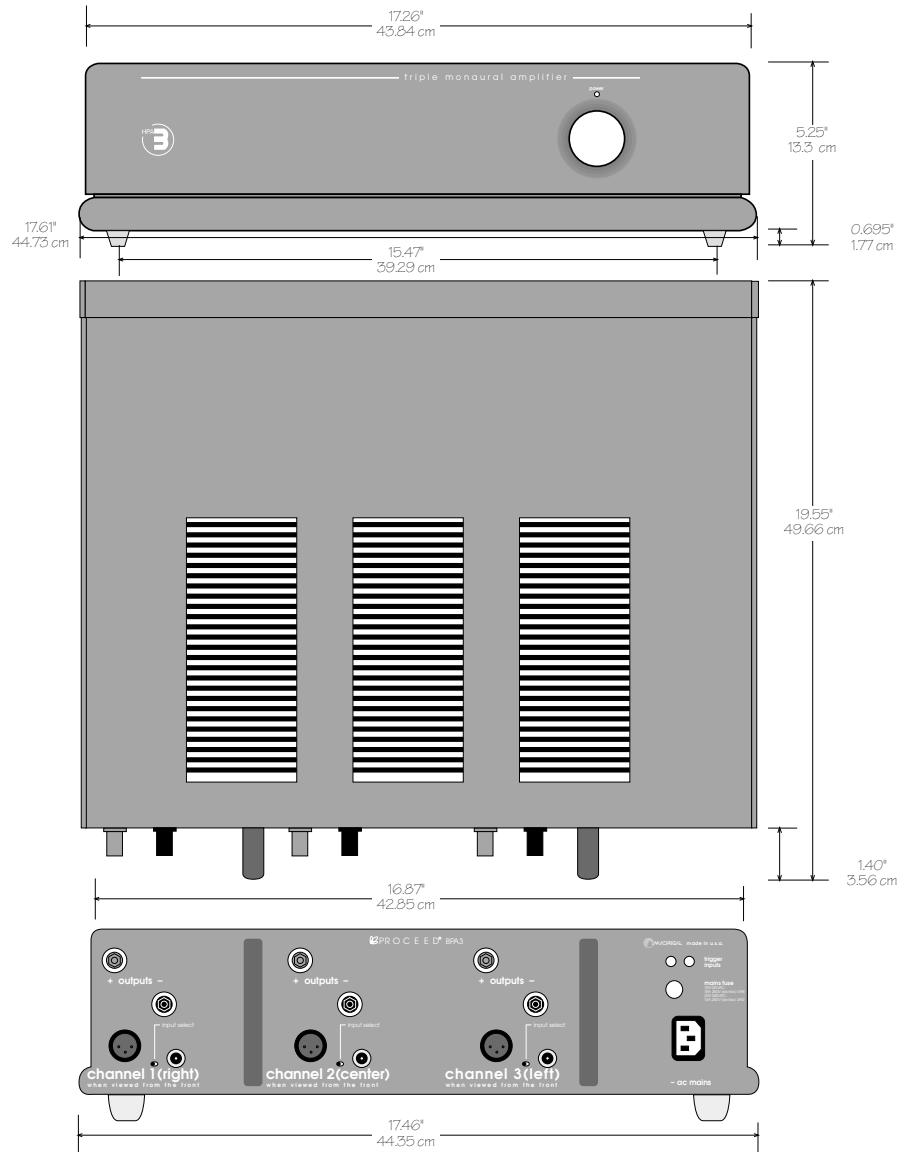
*FAX (860) 346-1540*

*Internet <http://www.madrigal.com/>*

*Madrigal provides an owner-transferable, five year extended warranty on all Proceed products within the U. S. and Canada ONLY. Warranty and service policies outside the U. S. and Canada are set by the local, authorized distributor and are applicable in the country of purchase ONLY. Madrigal products are designed to operate at set voltages appropriate for the country of sale and may be damaged if operated at the wrong voltage. contact your local dealer or distributor.*

# Dimensions: BPA 2 & BPA 3

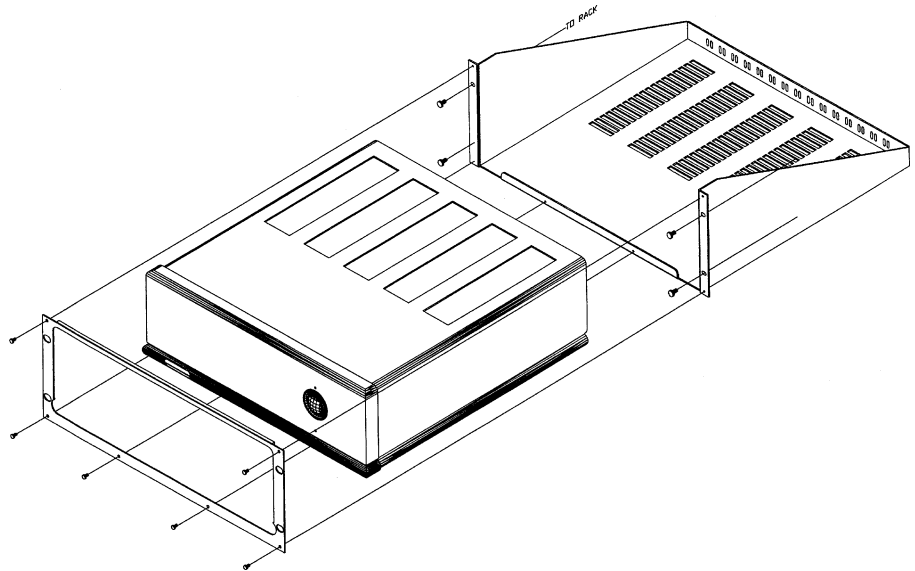
(Note that the BPA 2 and the BPA 3 have the same external dimensions. The BPA 3 is shown below.)



# Rack Mounting

If you need or prefer to rack mount your amplifier, contact your Proceed dealer about the optional rack mount kit. This purpose-designed assembly provides the needed ventilation for the heatsink “chimneys” of the amplifier as well as the support required for this heavy component.

To use the rack mount kit, simply bolt the shelf securely to the rack, slide the amplifier into place, and then mount the provided trim ring around the faceplate of the amplifier (which will protrude from the rack by approximately one inch or 2.5 cm). The drawing below will help you visualize the assembly (the Proceed Five Channel Amplifier is illustrated below, but the assembly is the same for the BPA amplifiers).



The mounted amplifier and rack mount kit occupies 5 standard rack units of height.



MADRIGAL

Madrigal Audio Laboratories, Inc.  
2081 South Main Street, P.O. Box 781  
Middletown, Connecticut 06457 USA

Telephone: (860) 346-0896  
Fax: (860) 346-1540  
<http://www.madrigal.com/>

 P R O C E E D<sup>®</sup>

*is a registered trademark of Madrigal Audio Laboratories, Inc.*  
**H** a Harman International company